

GUIDELINES FOR THE MEDICAL EXAMINATION OF CANDIDATES FOR VISITS TO ANTARCTICA

- 1 Personnel selected by Antarctica New Zealand for activities in Antarctica may be stationed at Scott Base on Ross Island, huts in the dry valleys, Cape Evans, Cape Royds, Cape Bird or may be involved in deep field parties, high on the Antarctic plateau. While in Antarctica they may engage in physical activity at altitudes of up to 3,500 metres, may experience temperatures as low as -40°C may dive in ice-covered lakes or seas, and make flights in unpressurised aircraft to 3,500 metres.
- 2 Some applicants may be base support staff, others could be in the field for a month or two, while the winter-over personnel may be subject to the stress of isolation. It is important that they are in good physical condition and free from any disability which could adversely affect their health, restrict their activities or create a burden for others in Antarctica. Those applicants whose continued good health is dependent on medication may not be acceptable.
- 3 Scott Base has a first aid post and in summer a First Aider who is able to handle basic medical problems. Anything of a more serious nature is referred to the nearby (4km) United States McMurdo Station where there are limited hospital facilities. Because of Antarctica's remoteness and the limited medical facilities, with evacuation to Christchurch being 1 to 3 days away in summer and no regular evacuation programme in winter, it is vitally important to thoroughly screen individuals to identify risk factors. Some illnesses which have necessitated Medivac from Antarctic Treaty nation bases include acute cholecystitis, amoebiasis, appendicitis, bleeding duodenal ulcer, inflammatory bowel disease, inguinal hernia, intracranial haemorrhage, migraine, renal colic, hydronephrosis, psychiatric disorder and previously undiagnosed coronary artery disease.
- 4 A detailed history should be recorded together with the results of a thorough medical examination. Vague references to apparently minor disorders or treatments must be clarified as far as possible. In the final evaluation the medical assessor must be reasonably certain that the applicant is free from incipient disease or functional impairment. A clear history of prior illnesses, previous operations and any consequences may greatly assist the caring for the individual in isolation. Any history of drug sensitivities or other allergies (including adverse reactions to anaesthetic, drugs), drug use and abuse (including tobacco and alcohol) and any relevant sex history which may indicate high risk of HIV infection should be clearly noted.

Due to the close living conditions, both at Scott Base and in the field, there is a potential risk for the spread of any contagious disease.

- 5 During the summer period some personnel may be required to travel to Antarctica for short periods only. For these applicants an examination must be carried out but the optimum standards of fitness needed for the wintering parties may not necessarily be required. The most rigorous standards apply to those destined to winter over or participation in deep field parties. But an applicant with special technical competence or with urgently required skills may have to be considered for tentative selection although there may be some questions in the medical assessment. Such cases may require special consideration by the Chief Executive, Antarctica New Zealand and the Antarctica New Zealand Medical Assessor.
- 6 Failure to complete each and every item on the attached physical examination form will result in significant delays in, or cancellation of, the applicant's travel to Antarctica and may jeopardise his/her employment.
- 7 Attention is drawn to the following: -
 - a **Age**
There are no limitations providing the person is physically fit, psychologically satisfactory and meets all other health criteria.
 - b **Family History**
Attention should be paid to any affirmative answers in the section and applicable comment made.
 - c **Obesity**
Applicants with a body mass index (weight divided by height, squared) greater than 35 may be declined.
 - d **ENT**
Frequent epistaxis should be evaluated and its cause treated prior to approval.
 - e **Pulmonary**
Attention should be paid to asthma, chronic lung disease, emphysema and any condition reducing vital capacity. Current significant asthma may be disqualifying. It is important that there should not be any significant restriction in airway function for wintering over personnel and any evidence of fixed or reversible airways obstruction is important as the cold, dry atmosphere of Antarctica, together with the exercise that may be required, could result in an unacceptable medical hazard. A past history of recurrent pneumothorax or pulmonary emboli is likely to be disqualifying, as is the detection of factor V Leiden, which considerably increases the risk of deep vein thrombosis or pulmonary embolus.
 - f **Cardiovascular**
ECG/Exercise stress test - for all Winter Overs, Deep Field staff, applicants over 60 years of age and any persons with significant

cardiac risk factors. A history of active angina pectoris, recent myocardial infarction and cardiac surgery shall be disqualifying as are valvular heart disease, paroxysmal dysrhythmias and poorly controlled high blood pressure, requiring medication.

g Gastro-intestinal

Chronic or active peptic ulceration, diverticulitis, or inflammatory bowel disease are unacceptable, unrepaired inguinal and femoral hernias are usually disqualifying, and frequent or severely symptomatic haemorrhoids must be repaired.

h Endocrine

A person suffering from Type 1 diabetes is not likely to be acceptable and other endocrine disorders usually disqualify the individual.

i Gento-urinary

Verified recurrent renal calculi and chronic or acute pyelonephritis are usually disqualifying.

j Musculoskeletal

The spine must be in good condition. Any suggestion of nerve root pressure at any level must be fully investigated. Careful assessment should be made of any other musculoskeletal disability.

k Skin

An applicant with any condition which tends to compromise cutaneous circulation and sensation may be unacceptable. The face, arms, hands and feet are particularly prone to the environmental conditions. Assessment of the following is important : Abnormally, flushed, pale or cyanotic skin on hands or feet, areas of scarring and skin grafting, collagen disorder, dermatoses of chronic or acute nature.

l Nervous System

It is unlikely a person with epilepsy will be selected. A history of brain surgery, unconsciousness, disorders of sensation or balance should be carefully evaluated.

m Psychiatric

Past history of any psychiatric disorder should be carefully assessed.

n Gynaecological

There is limited gynaecological capability and no obstetric care available in the Antarctica. A full gynaecological history must be taken and further examination or investigation carried out, if indicated.

o Eyes

All applicants wearing glasses or contact lenses must be advised to take spare lenses or glasses if they are selected. If there is vision in only one eye, the good eye must be carefully assessed.

p Dental

It is imperative that all applicants' dental condition be excellent before leaving New Zealand. They should fulfil criteria according to the Antarctica New Zealand dental protocol.

q **Current or Previous Drug Therapy**

It is appreciated that the applicant may not know the nature of all drugs prescribed. However, any information on even intermittent drug use is important. Use of any drugs for asthma, hypertension, peptic ulcers, epilepsy, diabetes and skin conditions should be noted, in particular.

r **Laboratory Examinations**

Although candidates are advised of the need for the following tests at the time of the examination the Doctor should explain to the candidates the requirement for blood donor screen tests and counsel them on the implications of any positive results especially for Hepatitis B, C and HIV. **The Examining Doctor should request laboratories to send all the results to them and not direct to Antarctica New Zealand.** The following laboratory examinations are required:

- Complete blood count
- Urinalysis
- Blood group ABO, Kell and RH and blood group antibody screen
- RPR or VDRL
- Hepatitis B antigen, Hepatitis C antibodies
- HIV antibodies
- Mantoux test for TB
- Chest x-ray (Winter Over personnel or if clinically indicated)
- ECG/Exercise stress test - for all Winter Overs, Deep Field Staff, applicants over 60 years of age and any persons displaying significant cardiac risk factors
- Cervical smear within the last 12 months for winter over females.
- Mammogram within the last 6 months for winter over women over 40 years of age.

With the increasing prevalence of tuberculosis in New Zealand in recent years, it is necessary to include a Mantoux test in the pre-screening medical examination.

If the Mantoux test is positive according to current criteria it will be necessary to follow up with a chest x-ray.

For those applicants who are returning again to Antarctica and who have had a strongly positive Mantoux test documented from the previous season it would be advisable to proceed directly to a chest x-ray rather than repeat the Mantoux test in the first instance.

s **Inoculations**

Recommended that inoculations be carried out if it is 10 years since the previous polio or tetanus immunisation.

t **Examination for Divers**

Personnel selected for diving must have passed a diving medical examination (AS/NZ 2299 standard or equivalent) within the year and include stress ECG, audiometry and respiratory function testing. Attention should be paid to tympanic membranes, eustachian tubes and para-nasal sinuses.

A "Clearance to Dive" certificate should accompany the completed medical examination form and test results to the Medical Assessor in the provided envelope.